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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/082,454	02/25/2002	Alfred Wade Muldoon		4361

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EXAMINER

KURR, JASON RICHARD

ART UNIT PAPER NUMBER

2615

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Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/082,454	MULDOON, ALFRED WADE	
	Examiner	Art Unit	
	Jason R. Kurr	2615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 28 July 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) 1-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 21-40 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)                                    | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 21, 22, 25, 26, 28 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wallaert (US 5,436,788) in view of Schmitt et al (US 6,226,602 B1) and in further view of Williams et al (US 5,973,899).

With respect to claim 21, Wallaert discloses an electronic control (fig.3 #13) including sensing means (fig.3 #1) to scan one or more energizing circuits (fig.3 #16,17,19,20) of a device (col.3 ln.54-68), said energizing circuit containing one or more transducers (fig.3 #16, col.4 ln.22-23), said energizing circuits including switches (fig.3 #19), said energizing circuits carrying the current of said transducers, said transducers having the potential to cause said device to operate in a hazardous manner if said transducers are mistakenly energized, said transducers never causing said device to operate in a hazardous manner when said transducers are in an unenergized state, the intended states of said switches are known to said control whether said intended states are set by said control or an override in said device (col.4 ln.49-57).

Wallaert does not disclose expressly wherein the said control identifies any of said switches as functional that said sensing means verifies are in said intended states, identifying any of said switches as non-functional that said sensing means verifies are not in said intended states.

Schmitt discloses an electric circuit arrangement for checking the functionality of a series arranged switch and load. The circuit of Schmitt is capable of checking whether the switch is functioning properly through the use of a microprocessor, hence determining if the switch is in an intended state (col.2 ln.60-67, col.3 ln.1-20).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to use the switch diagnostic circuit arrangement of Schmitt in the invention of Wallaert.

The motivation for doing so would have been to determine when the switches of Wallaert are not functioning properly in a timely manner as taught by Schmitt (col.3 ln.15-20).

The combination of Wallaert and Schmitt does not disclose expressly preventing any of said switches identified as non-functional from causing said transducers to be mistakenly energized by opening one or more of said switches identified as functional.

Williams discloses a circuit wherein a circuit breaker (fig.1 #42,44) that trips upon detection of an overcurrent condition or a fault. The tripping of the breaker hence

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causes current carrying sectional switches (fig.1 #40,46,48) to open in order to protect the loads (fig.1 #26,28,36,38)(col.2 ln.60-67, col.3 ln.1-4).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to use the switch opening system of Williams in the combination of Wallaert and Schmitt. It is well known that overcurrent conditions as described by Williams can be a result of faulty circuit elements such as switches, thus the detection of these switch faults by Schmitt when made in combination with Williams would result in an opening of the functional switches ("sectional switches"), which would not allow the load to be mistakenly energized.

The motivation for using the switch opening system of Williams in the combination of Wallaert and Schmitt would have been to break the supply of current to the load when the system is found to be operating in a hazardous condition, such as equipment failure.

With respect to claim 22, Wallaert discloses the control in accordance with claim 21 in which at least one of said transducers is a solenoid actuating a valve, said hazardous manner being flooding (col.1 ln.17-34).

With respect to claim 25, Wallaert discloses an electronic control (fig.3 #13) including sensing means (fig.3 #1) to scan one or more energizing circuits (fig.3 #16,17,19,20) of a device (col.3 ln.54-68), said energizing circuit containing one or more transducers (fig.3 #16, col.4 ln.22-23), said energizing circuits including switches (fig.3 #19), said energizing circuits carrying transducer current, said transducers having the

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potential to cause said device to operate in a hazardous manner if said transducers are mistakenly energized, said transducers never causing said device to operate in a hazardous manner when said transducers are in an unenergized state, the intended states of said switches are known to said control whether said intended states are set by said control or an override in said device (col.4 ln.49-57).

Wallaert does not disclose expressly wherein the said control identifies any of said switches as functional that said sensing means verifies are in said intended states, identifying any of said switches as erroneously closed that said sensing means verifies are not open when said intended state is open.

Schmitt discloses an electric circuit arrangement for checking the functionality of a series arranged switch and load. The circuit of Schmitt is capable of checking whether the switch is functioning properly through the use of a microprocessor, hence determining if the switch is in an intended state (col.2 ln.60-67, col.3 ln.1-20).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to use the switch diagnostic circuit arrangement of Schmitt in the invention of Wallaert.

The motivation for doing so would have been to determine when the switches of Wallaert are not functioning properly in a timely manner as taught by Schmitt (col.3 ln.15-20).

The combination of Wallaert and Schmitt does not disclose expressly preventing any of said switches identified as erroneously closed from causing said transducers to be mistakenly energized by opening one or more of said switches identified as functional.

Williams discloses a circuit wherein a circuit breaker (fig.1 #42,44) that trips upon detection of an overcurrent condition or a fault. The tripping of the breaker hence causes current carrying sectional switches (fig.1 #40,46,48) to open in order to protect the loads (fig.1 #26,28,36,38)(col.2 ln.60-67, col.3 ln.1-4).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to use the switch opening system of Williams in the combination of Wallaert and Schmitt. It is well known that overcurrent conditions as described by Williams can be a result of faulty circuit elements such as switches, thus the detection of these switch faults by Schmitt when made in combination with Williams would result in an opening of the functional switches ("sectional switches"), which would not allow the load to be mistakenly energized.

The motivation for using the switch opening system of Williams in the combination of Wallaert and Schmitt would have been to break the supply of current to the load when the system is found to be operating in a hazardous condition, such as equipment failure.

With respect to claim 26, Wallaert discloses the control in accordance with claim 25 wherein at least one of said switches can be independently opened by either said control or an override (col.2 ln.46-50).

With respect to claim 28, Wallaert discloses the control in accordance with claim 25 in view of Williams wherein said control continues to operate said transducers in said energizing circuits of said switch identified as erroneously closed (Williams: col.2 ln.65-67, col.3 ln.1-2).

With respect to claim 30, Wallaert discloses the control in accordance with claim 25, wherein at least one sensor of said sensing means (fig.3 #1) scans said switches in a plurality of said energizing circuits (fig.3 #16).

Claims 23, 24 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wallaert (US 5,436,788) in view of Schmitt et al (US 6,226,602 B1) in view of Williams et al (US 5,973,899) and in further view of Reck et al (US 6,047,486).

With respect to claim 23, Wallaert discloses the control in accordance with claim 21, however fails to disclose expressly in which at least one of said transducers is a heating element, said hazardous manner being overheating.

Reck discloses a control system for a dryer wherein a heating element (fig.3B #92) is controlled by switches (fig.3B #92, col.5 ln.33-37).



At the time of the invention it would have been obvious to a person of ordinary skill in the art to monitor the heating element switches of Reck with the electronic control of Wallaert.

The motivation for doing so would have been to test the operation of the heating element to ensure that it is properly being switched on and off. This would provide the device with a safety mechanism that can compensate for inoperable switches, which would result in overheating of the element.

With respect to claim 24, Wallaert discloses the control in accordance with claim 21, however does not disclose expressly in which at least one of said transducers is a motor, said hazardous manner being physical injury to the operator of said device.

Reck discloses a control system for a dryer wherein a motor (fig.3B #78) is controlled by switches (fig.3B #76,84,86, col.5 ln.25-32).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to monitor the motor switches of Reck with the electronic control of Wallaert.

The motivation for doing so would have been to test the operation of the motor to ensure that it is properly being switched on and off. This would provide the device with a safety mechanism that can compensate for inoperable switches, which would result unwanted operation of the dryer motor.

With respect to claim 31, Wallaert discloses the control in accordance with claim 25, however does not disclose expressly wherein said sensing means also determines the state of at least one externally operated switch in said energizing circuits whose intended state is unknown to said control via any other means.

Reck discloses at least one externally operated switch (fig.3B #50,52,54,56) in wherein sensing means (fig.3A #46) determines an operating state whose intended state is unknown to the control via any other means (col.4 ln.47-56).

At the time of the invention it would have been obvious to include the external switch of Reck in the invention of Wallaert to control the functions of the transducers (#16).

The motivation for doing so would have been to provide a user with controls for influencing the operation of the transducers. This would allow a user to manually change the operation state of the transducers to obtain a desired response.

Claims 27, 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wallaert (US 5,436,788) in view of Schmitt et al (US 6,226,602 B1) in view of Williams et al (US 5,973,899) and in further view of Barnett et al (US 5,870,317).

With respect to claim 27, Wallaert discloses the control in accordance with claim 26, however does not disclose expressly wherein said control signals the operator it has identified one or more of said switches as erroneously closed.

Barnett discloses device for testing mechanisms wherein a control signals the operator it has identified one or more switches as erroneously closed (col.12 ln.41-50).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to signal an operator when a faulty switch is detected as disclosed by Barnett.

The motivation for doing so would have been to alert an operator of a fault in the system. This would provide the operator knowledge as to which switches or transducers need replacement.

With respect to claim 29, Wallaert discloses the control in accordance with claim 28, however does not disclose expressly wherein said control signals the operator it has identified one or more of said switches as erroneously closed.

Barnett discloses device for testing mechanisms wherein a control signals the operator it has identified one or more switches as erroneously closed (col.12 ln.41-50).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to signal an operator when a faulty switch is detected as disclosed by Barnett.

The motivation for doing so would have been to alert an operator of a fault in the system. This would provide the operator knowledge as to which switches or transducers need replacement.

Claims 32-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wallaert (US 5,436,788) in view of Wohlfarth (US 6,674,628 B1).

With respect to claim 32, Wallaert discloses an electronic control (fig.3 #13) including sensing means (fig.3 #1) to scan the output circuitry of a device, said output circuitry including one or more energizing circuits (fig.3 #17), said energizing circuits containing one or more transducers (fig.3 #16), said energizing circuits including switches (fig.3 #19), said energizing circuits carrying transducer current, said transducers having the potential to cause said device to operate in a hazardous manner if said transducers are mistakenly energized, said transducers never causing said device to operate in a hazardous manner when said transducers are in an unenergized state, at least one of said switches being a monitored switch (col.2 ln.46-50). The device of Wallaert is capable of monitoring switches that control transducer operation. The transducers of Wallaert are disclosed as being solenoids controlling valves. It is well known that the failure of solenoid valves can cause hazardous conditions; hence Wallaert's monitoring of the functionality of the switches controlling the solenoids would prevent the device from operating in a hazardous manner.

Wallaert does not disclose expressly using said sensing means to ascertain the frequency said monitored switch changes state, prolonging the period at least one of said transducers, switched by said monitored switch is unenergized if said frequency exceeds the rate at which said monitored switch can safely operate.

Wohlfarth discloses a relay control apparatus to monitor the number of transducers to be energized, thus controlling the duty cycle of the ac energizing signal by prolonging/shortening the period that the monitored switches are open (col.8 ln.3-28). This control of the duty cycle protects switches from reaching excessive rates.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to use the duty cycle control of Wohlfarth in the invention Wallaert.

The motivation for doing so would have been for applications where the transducers of Wallaert are desired to receive a rapidly changing energizing signal such as heating elements and cooling fans. This system of switch control could also be implemented in the invention of Wallaert for applications that require a defined amount of switching of the disclosed solenoid valves.

With respect to claim 33, Wallaert discloses the control in accordance with claim 32, wherein said sensing means scans said energizing circuits (col.3 ln.54-68).

Claims 34 and 36-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wallaert (US 5,436,788) in view of Wohlfarth (US 6,674,628 B1) in view of Schmitt et al (US 6,226,602 B1) and in further view of Williams et al (US 5,973,899).

With respect to claim 34, Wallaert discloses the control in accordance with claim 33, wherein the intended states of said switches are known to said control whether said intended states are set by said control or an override in said device (col.4 ln.49-57), said control; identifying any of said switches as functional that said sensing means verifies

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are in said intended state, identifying any of said switches as non-functional that said sensing means verifies are not in said intended state (col.4 ln.36-38), preventing any of said switches identified as non-functional from causing said transducers to be mistakenly energized by opening one or more of said switches identified as functional (col.2 ln.46-51).

Wallaert does not disclose expressly wherein the said control identifies any of said switches as functional that said sensing means verifies are in said intended states, identifying any of said switches as non-functional that said sensing means verifies are not in said intended states.

Schmitt discloses an electric circuit arrangement for checking the functionality of a series arranged switch and load. The circuit of Schmitt is capable of checking whether the switch is functioning properly through the use of a microprocessor, hence determining if the switch is in an intended state (col.2 ln.60-67, col.3 ln.1-20).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to use the switch diagnostic circuit arrangement of Schmitt in the invention of Wallaert.

The motivation for doing so would have been to determine when the switches of Wallaert are not functioning properly in a timely manner as taught by Schmitt (col.3 ln.15-20).

The combination of Wallaert and Schmitt does not disclose expressly preventing any of said switches identified as non-functional from causing said transducers to be mistakenly energized by opening one or more of said switches identified as functional.

Williams discloses a circuit wherein a circuit breaker (fig.1 #42,44) that trips upon detection of an overcurrent condition or a fault. The tripping of the breaker hence causes current carrying sectional switches (fig.1 #40,46,48) to open in order to protect the loads (fig.1 #26,28,36,38)(col.2 ln.60-67, col.3 ln.1-4).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to use the switch opening system of Williams in the combination of Wallaert and Schmitt. It is well known that overcurrent conditions as described by Williams can be a result of faulty circuit elements such as switches, thus the detection of these switch faults by Schmitt when made in combination with Williams would result in an opening of the functional switches ("sectional switches"), which would not allow the load to be mistakenly energized.

The motivation for using the switch opening system of Williams in the combination of Wallaert and Schmitt would have been to break the supply of current to the load when the system is found to be operating in a hazardous condition, such as equipment failure.

With respect to claim 36, Wallaert discloses the control in accordance with claim 34 wherein at least one sensor of said sensing means scans said switches in a plurality of said energizing circuit (fig.3 #16).

With respect to claim 37, Wallaert discloses the control in accordance with claim 33 wherein the intended states of said switches are known to said control whether said intended states are set by said control or an override in said device.

Wallaert does not disclose expressly wherein the said control identifying any of said switches as functional that said sensing means verifies are open when said intended state is open, said control identifying any of said switches as erroneously closed that said sensing means verifies are not open in said intended state is open, preventing any of said switches identified as erroneously closed from causing said transducers to be mistakenly energized by opening one or more of said switches identified as functional.

Schmitt discloses an electric circuit arrangement for checking the functionality of a series arranged switch and load. The circuit of Schmitt is capable of checking whether the switch is functioning properly through the use of a microprocessor, hence determining if the switch is in an intended state (col.2 ln.60-67, col.3 ln.1-20).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to use the switch diagnostic circuit arrangement of Schmitt in the invention of Wallaert.

The motivation for doing so would have been to determine when the switches of Wallaert are not functioning properly in a timely manner as taught by Schmitt (col.3 ln.15-20).



The combination of Wallaert and Schmitt does not disclose expressly preventing any of said switches identified as erroneously closed from causing said transducers to be mistakenly energized by opening one or more of said switches identified as functional.

Williams discloses a circuit wherein a circuit breaker (fig.1 #42,44) that trips upon detection of an overcurrent condition or a fault. The tripping of the breaker hence causes current carrying sectional switches (fig.1 #40,46,48) to open in order to protect the loads (fig.1 #26,28,36,38)(col.2 ln.60-67, col.3 ln.1-4).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to use the switch opening system of Williams in the combination of Wallaert and Schmitt. It is well known that overcurrent conditions as described by Williams can be a result of faulty circuit elements such as switches, thus the detection of these switch faults by Schmitt when made in combination with Williams would result in an opening of the functional switches ("sectional switches"), which would not allow the load to be mistakenly energized.

The motivation for using the switch opening system of Williams in the combination of Wallaert and Schmitt would have been to break the supply of current to the load when the system is found to be operating in a hazardous condition, such as equipment failure.

With respect to claim 38, Wallaert discloses the control in accordance with claim 37 wherein at least one of said switches can be independently opened by either said control or an override (col.2 ln.46-50).

With respect to claim 39, Wallaert discloses the control in accordance with claim 37 wherein at least one sensor of said sensing means scans said switches in a plurality of said energizing circuits (fig.3 #16).

Claims 35 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wallaert (US 5,436,788) in view of Wohlfarth (US 6,674,628 B1) in view of Schmitt et al (US 6,226,602 B1) in view of Williams et al (US 5,973,899) and in further view of Reck (US 6,047,486).

With respect to claim 35, Wallaert discloses the control in accordance with claim 34, however does not disclose expressly wherein said sensing means also determines the state of at least one externally operated switch in said circuit whose intended state is unknown to said control via any other means.

Reck discloses at least one externally operated switch (fig.3B #50,52,54,56) in wherein sensing means (fig.3A #46) determines an operating state whose intended state is unknown to the control via any other means (col.4 ln.47-56).

At the time of the invention it would have been obvious to include the external switch of Reck in the invention of Wallaert to control the functions of the transducers (#16).

The motivation for doing so would have been to provide a user with controls for influencing the operation of the transducers. This would allow a user to manually change the operation state of the transducers to obtain a desired response.

With respect to claim 40, Wallaert discloses the control in accordance with claim 37, however does not disclose expressly wherein said sensing means also determines the state of at least one externally operated switch in said circuit whose intended state is unknown to said control via any other means.

Reck discloses at least one externally operated switch (fig.3B #50,52,54,56) in wherein sensing means (fig.3A #46) determines an operating state whose intended state is unknown to the control via any other means (col.4 ln.47-56).

At the time of the invention it would have been obvious to include the external switch of Reck in the invention of Wallaert to control the functions of the transducers (#16).

The motivation for doing so would have been to provide a user with controls for influencing the operation of the transducers. This would allow a user to manually change the operation state of the transducers to obtain a desired response.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Manner (US 6,198,612) discloses a method and apparatus for the monitoring of electric lines.

Furmanek (US 6,125,870) discloses overflow protection for a washing machine.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason R. Kurr whose telephone number is (571) 272-0552. The examiner can normally be reached on M-F 10:00am to 6:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin can be reached on (571) 273-8300. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JK  
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